

# STRONG STEEL CASTINGS



TENSILE STRENGTH • ELONGATION



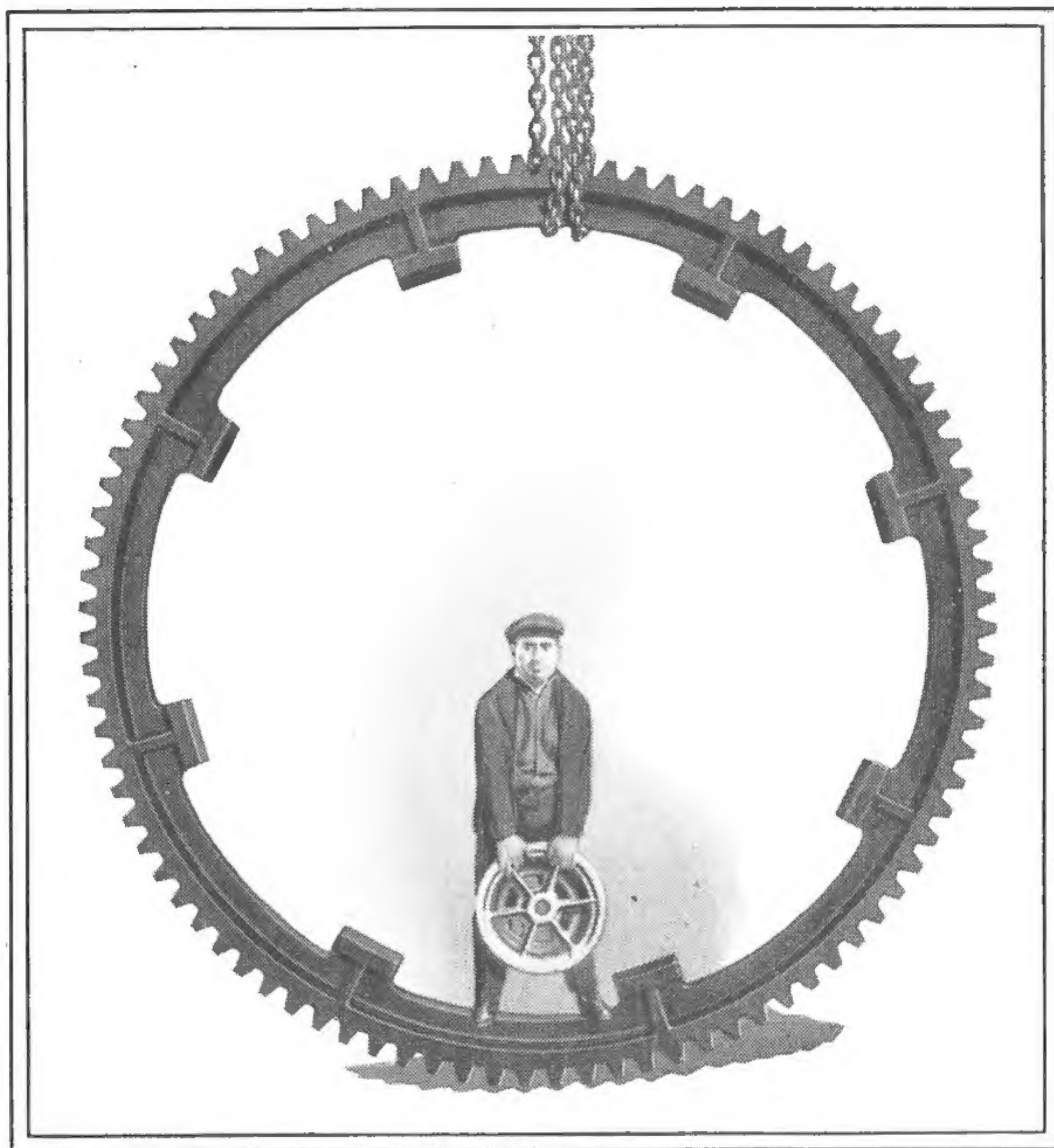
CASTINGS  
STRONG STEEL



THE STEEL CASTING COMPANY



# STRONG STEEL CASTINGS



IF IT CAN BE  
CAST FROM STEEL  
AND IS WITHIN  
OUR SIZE RANGE  
WE CAN CAST IT

# STRONG STEEL FOUNDRY COMPANY

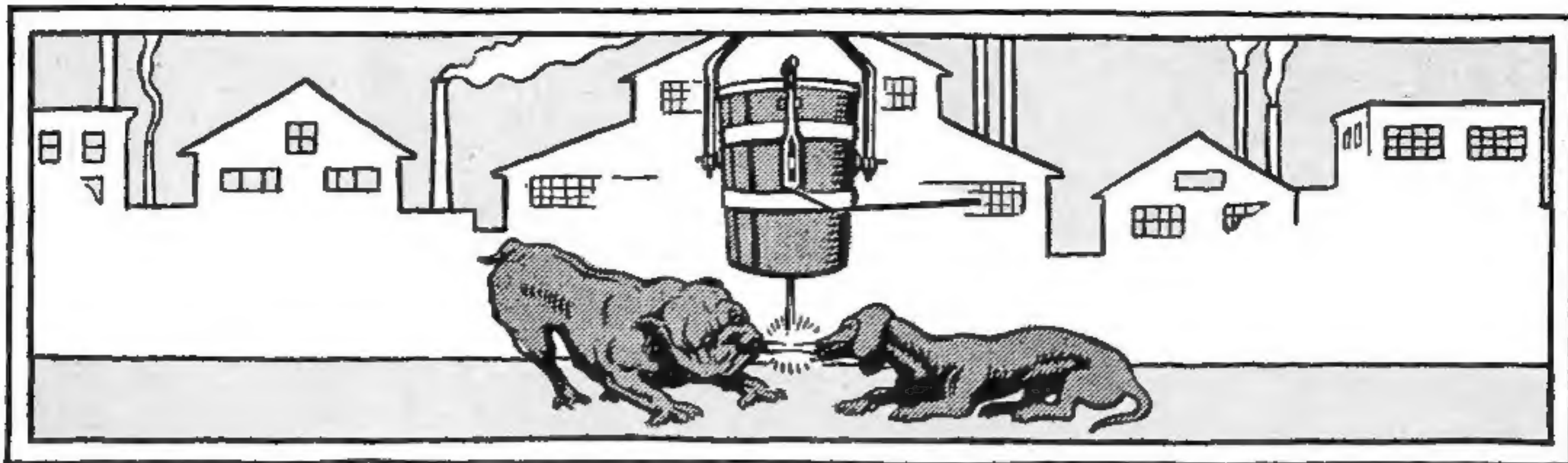


Ideally located as to shipping  
facilities afforded by fourteen  
railroads and trolley  
freight lines

BUFFALO, NEW YORK

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in original.





**T**HIS booklet is written for busy men. Its purpose is briefly to place before the buyer of steel castings those facts which he would like to know when the question of ordering steel castings arises.

The presentation is based upon the assumption that the careful buyer chooses to employ his own good judgment in the placing of orders; that the putting before him of unexaggerated facts about Strong Steel Castings, together with a few illustrations of castings we have made, provides desirable information upon which to base that judgment.

If this information will but result in a trial order for Strong Steel Castings, we are thoroughly content.

## Here Are the Facts

### *All Raw Material Must Meet Rigid Tests*

Every precaution is taken to insure the best possible material for the making of our steel.

Pig iron is purchased on a guaranteed analysis, providing a minimum of sulphur and phosphorus and the correct silicon content for the best acid open-hearth steel. Contracts are placed six months to one year in advance, to insure our supply.

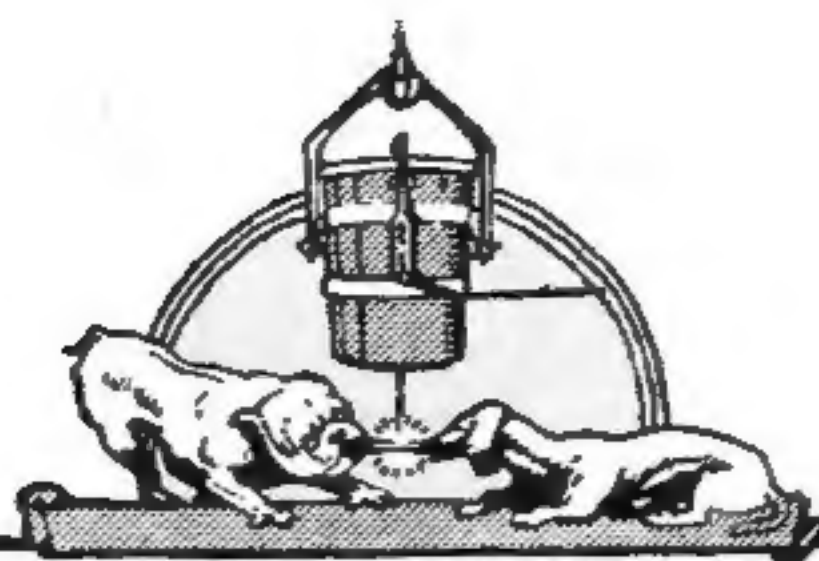
All scrap iron purchased must meet our specifications and contain less than .04 of one per cent sulphur and phosphorus and no alloys, such as nickel, chrome, copper, etc. Before each car is unloaded, samples are tested in our chemical laboratory. If even one out of eight samples fails to meet our specifications, the entire car is rejected.

### *Melted in Acid Open-hearth Furnace*

Our steel is melted in an acid open-hearth furnace of the very latest design, which permits the best possible control of the metal.

Oil is the only fuel used in this melting process and must test





under a specified sulphur content. Thus the sulphur in our finished product is kept down to a minimum.

### *High Tensile Strength Elasticity and Ductility*

annealing, gives our castings their high tensile strength, elasticity, and ductility, and enables us to readily meet various specifications and high-pressure tests which are called for on a large part of our work.

### *Uniform Quality Assured*

Our customers are assured of a high-quality, uniform product. Every heat has to meet specific tests, and is therefore given the most careful supervision.

### *Skilled Workmanship*

Careful molding and coremaking by skilled workmen under well trained foremen, together with methods resulting from over twenty years' experience in foundry practice, and absolutely unexcelled foundry talent, is positive assurance that all our castings are properly fed, shrinkage and strain kept to a minimum, cracks eliminated, and accuracy maintained to the highest degree possible in the most up-to-date foundry practice.

### *Thorough Cleaning— No Skimping*

Our castings are thoroughly and properly cleaned. The head is cut close to the casting and the pad is ground off. Fins and lumps are first chipped and then ground off, so that machining is confined to the casting itself, thus saving our customers time and expense in that operation.

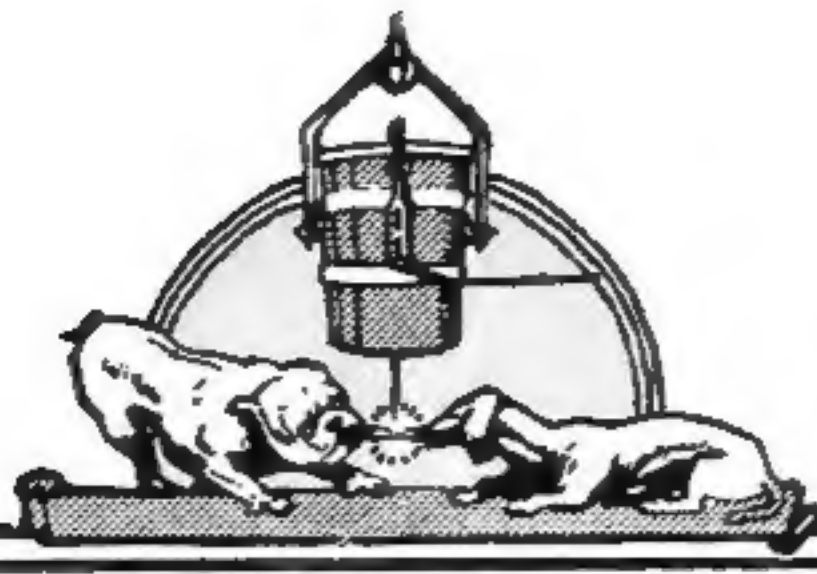
There is no skimping in our cleaning department!

### *Machining Made Easy*

Every Strong Steel Casting is thoroughly annealed. Castings that are to be machined are sand-blasted to remove scale. Consequently, with our uniformly high quality of steel, careful molding, and thorough cleaning, our castings machine easily.

One customer states that he saved \$100 in machining one of our castings as compared with a casting made from the same pattern by another steel foundry.





### *Rigid Inspection Maintained*

All castings, before shipping, are subjected to a most rigid inspection. There must be positively no deviation from the high standards we have set.

### *Prompt Delivery*

Anyone familiar with foundry practice knows of the many contingencies that can set a job back and interfere with the keeping of a delivery promise.

Yet we have established a reputation for prompt deliveries, with the enviable record of well over 90% of them made on or before the date specified.

The fact that our production office works hand in hand with each department, keeping a visible record which shows just how each order is progressing and providing a means of making careful check on dates for molding, casting, cleaning, and shipping, is largely responsible for this record, which we are continually striving to better.

### *Special Service for Rush Orders*

In addition to our ordinary prompt service we have a special routine for "break-down" jobs, which go through our plant in from three to six days, depending on the character of the job, a service which we believe is not excelled elsewhere.

This "right-of-way" service can be given only on actual "break-down" jobs, because of the cost and interference with our regular production schedules. We stand ready, however, to offer this service when an unusual condition makes it absolutely necessary.

### *Careful Supervision Throughout*

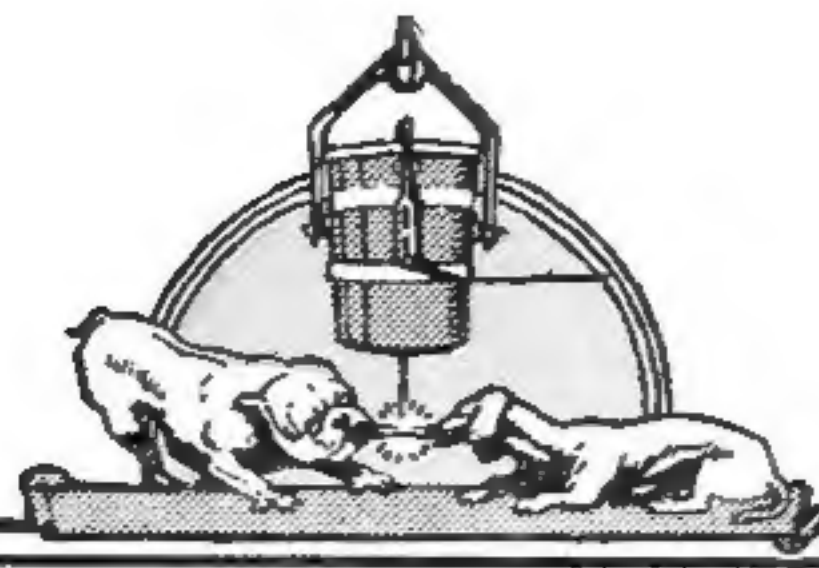
The most careful supervision is maintained at every stage of our production. This, and the close co-operation of our entire organization, is largely responsible for our reputation for high quality and prompt deliveries.

Every foreman in our plant has worked up from our own ranks and for over six years we have not had to go outside of our own plant to hire a man.

### *Dependability*

Our record of less than 1½% of rejections, even on the most difficult type of castings,





gives us the right to the claim, "Strong Steel Castings Are Dependable."

*Large Capacity* Our capacity is normally from 100 to 125 tons per week, depending, of course, on the type of castings we are making. These castings range from 10 pounds to 15 tons each.

*Excellent Shipping Facilities* We are ideally situated as to shipping facilities afforded by fourteen railroads and trolley freight lines. Our castings can be loaded on freight cars inside our own buildings or trucked to near-by freight houses. Transportation by lake carriers is also available during the lake shipping season.

*Care of Patterns* We have one of the finest pattern storage vaults in the country. The building is two stories high, of brick and concrete construction, and completely equipped with a sprinkling system for fire protection.

We also have our own pattern shop where we make new patterns and keep customers' patterns in repair. Here every new pattern is checked before it is put into the sand; here the molding foreman studies the patterns and plans the job.

Our pattern shop, machine shop, and pattern layout department are also equipped with automatic sprinklers.

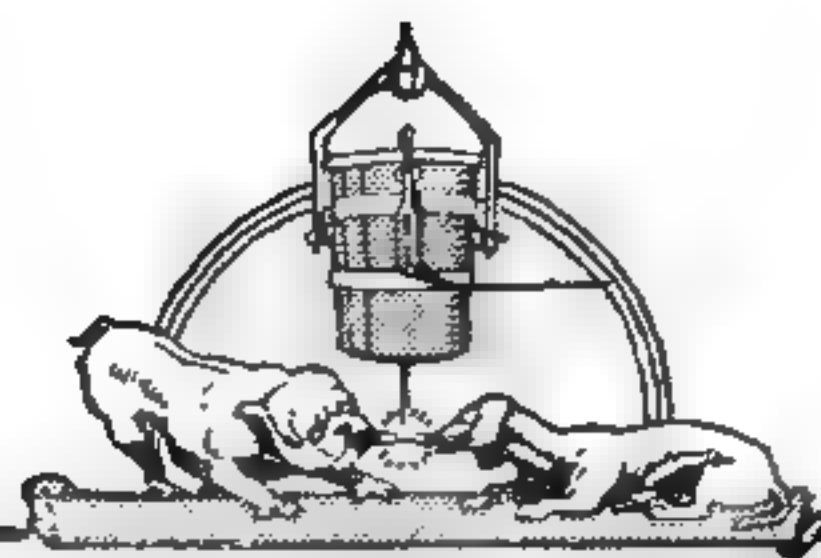
*The Right Price* We have made a radical departure from the old "schedule" method of pricing, by which all castings are priced at a uniform rate per pound irrespective of the cost of production. We believe such a method unfair to our customers and to ourselves.

Why should you help to pay for some other man's casting or he for yours? Yet that is the way most "schedules" work.

Weight means two things only in our cost: how much molten metal the casting will take and by what the total cost shall be divided to arrive at the pound price.

When quoting a price, we figure from your blueprint, or pattern, the weight and cost of metal, molding time and cost, core





time and cost, cleaning time and cost, then divide the total of these costs by the weight, to arrive at the pound price. This bases the price of each individual casting on its actual cost, which we believe is by far the fairest way.

Let us suppose you have a 150-pound casting, which owing to its shape costs us \$9.30 to mold, core, cast, clean and anneal, and another customer has a casting which weighs exactly the same but costs us \$13.15 to complete. Should we base our price to each of you on an average of 7.45 cents per pound or base your price on a cost of 6.20 cents and the other man's price on 8.70 cents per pound?

Of course, this method of pricing places our prices in some instances higher than "schedule" prices, but in many other instances our prices are much lower. In fact, many of our customers have experienced a considerable saving because the predominance of lower-priced castings ordered has brought the average price lower.

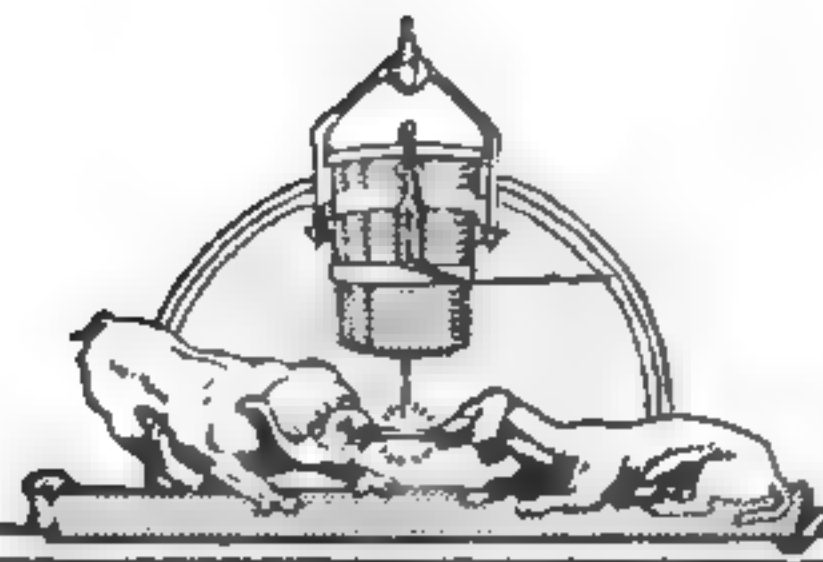
Moreover, the fact that we are assured a profit on each casting, rather than having to make up from one customer what we might lose on another, enables us to give full value on every order. And full value is not merely dependent on a certain price per pound—quality and service are important factors in the final cost of your completed product.

A customer paid us 7 cents per pound for a casting which he had previously purchased at 6.90 cents per pound from another foundry. His machining cost on our casting was \$100 less than on the former casting. Subtracting this saving from the cost of our casting, he determined that the comparative cost was 6.40 cents per pound as against his former cost of 6.90 cents. Even \$5 saved in machining a 1000-pound casting means a saving of  $\frac{1}{2}$  cent per pound.

We should like to have you place just one trial order for Strong Steel Castings, and let future orders depend on the opinion of your shopmen as to the appearance, ease of machining, soundness and cleanliness of our castings, and the checking of your final costs.

May we have an opportunity to prove ourselves?





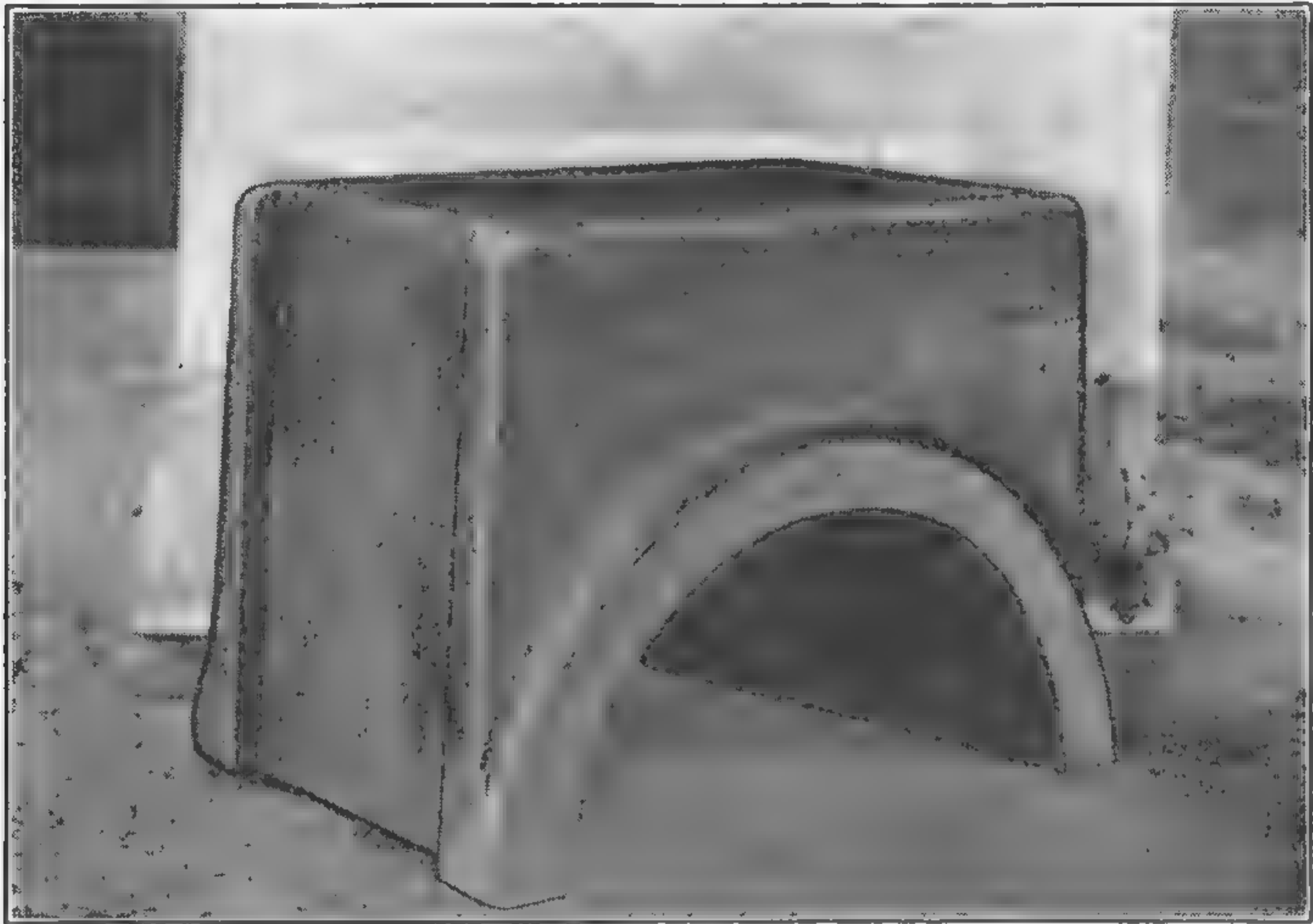
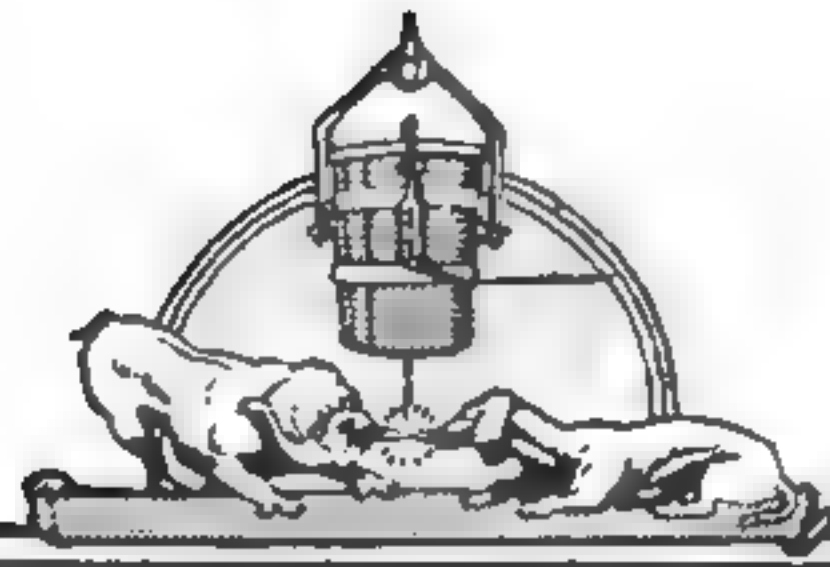
The above illustration shows a Strong Steel Casting of a 460-pound crosshead with arms at an angle of  $45^{\circ}$  to the body.

Besides the core for the center of the body, cores are necessary for one side of each arm, in order that the pattern may be drawn from the sand.

It requires  $2\frac{1}{2}$  hours to make the mold for this casting and 72 minutes for the cores. Heads and gates require 308 additional pounds of steel. Then, there is the time required for cleaning.

Now let us look at the illustration on the right-hand page. This is a casting of a half bearing, weighing 470 pounds. It is a plain piece which can be molded in 48 minutes, with but 9 minutes for making the core, and correspondingly less time required for cleaning. Heads and gates require only 198 additional pounds of steel.





Therefore, we have the following comparison of cost elements in the production of these two castings: 150 minutes against 48 minutes for molding; 72 minutes against 9 minutes for core-making; the many cleaning operations corresponding in time to the above differences, and a total of 768 pounds of metal necessary for molding the crosshead as against 668 pounds for the bearing.

This gives us an actual cost of 8.7 cents per pound for the crosshead and 4.2 cents per pound for the bearing—a difference of 4.5 cents per pound or over 100% difference in cost.

While these two examples were chosen because of their wide difference in price, they are actual instances and serve to clearly demonstrate the fairness of our method of pricing.

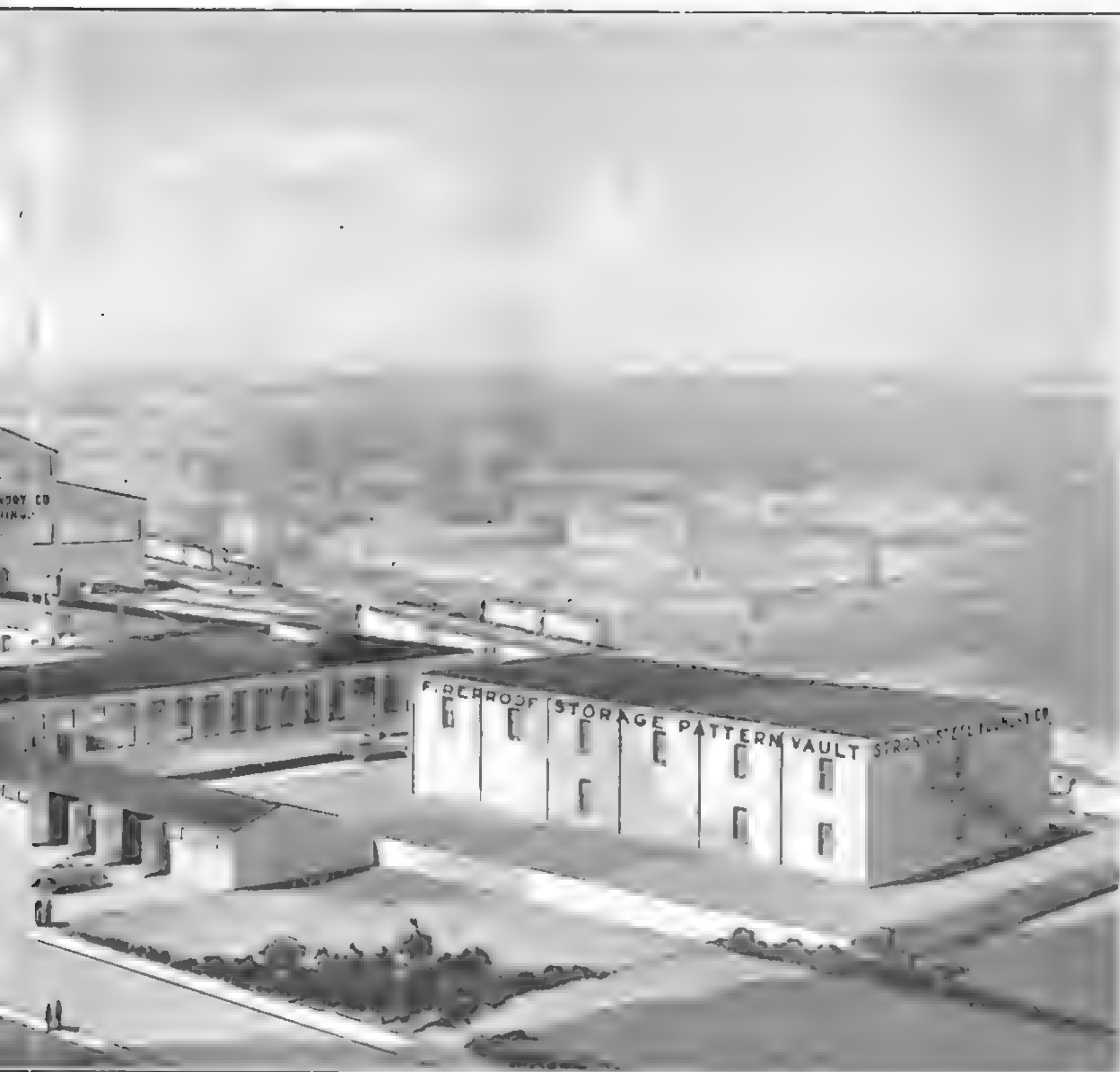




The Strong Steel Foundry is one of the best-equipped steel foundries in the country. Its normal capacity is from 100 to 125 tons of steel castings a week, the sizes ranging from 10 pounds to 15 tons each.

Oil is used as fuel to minimize the sulphur content of the steel and to provide better control throughout the melting. Note the absence of smoke from the chimneys in the accompanying



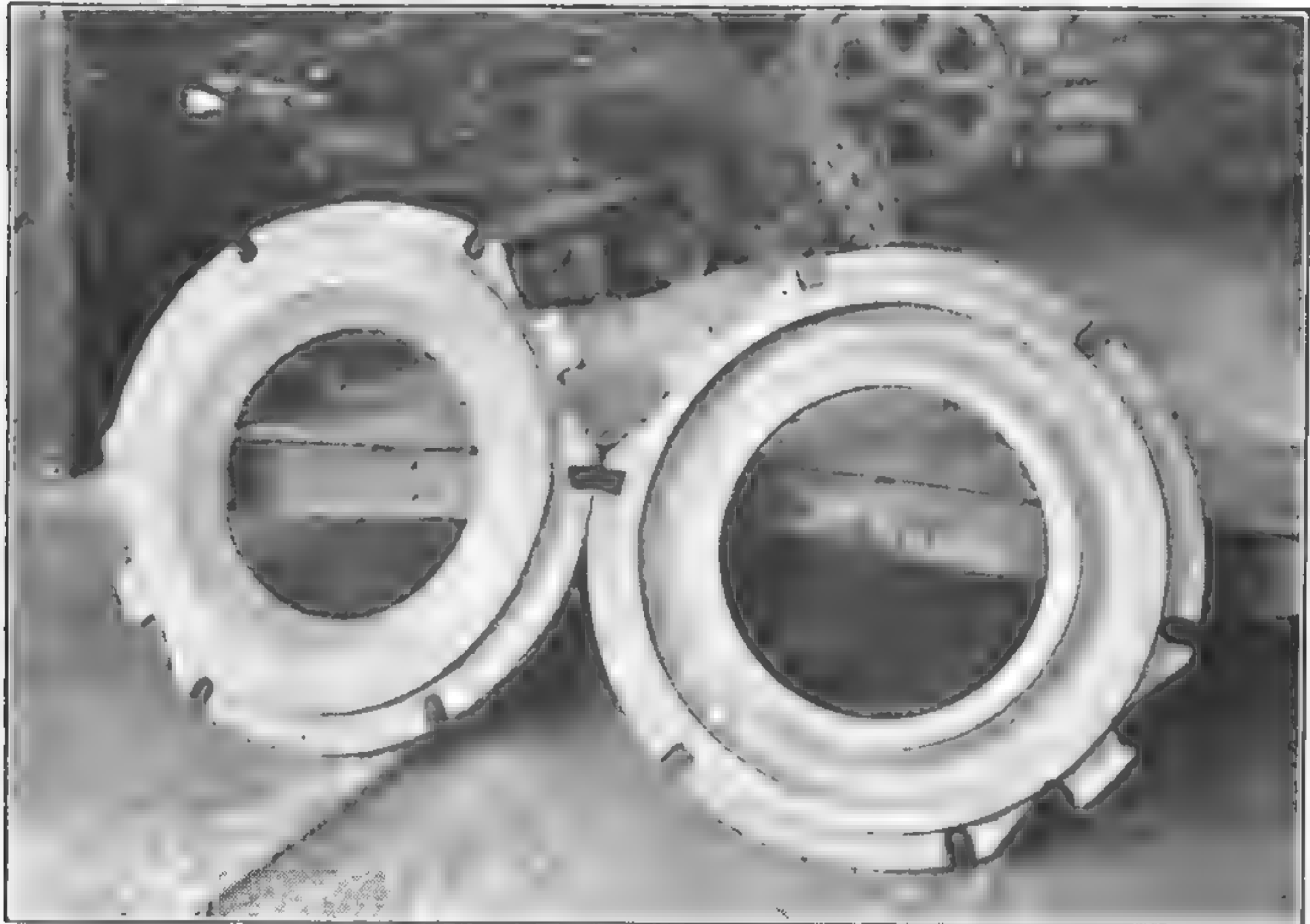
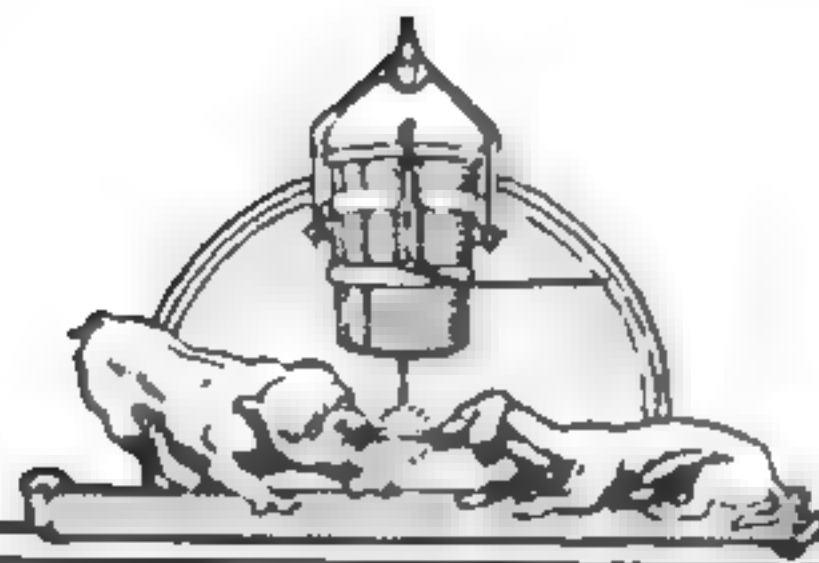


picture, due to the perfect combustion of the oil.

The fireproof pattern storage vault shown at the right of the picture is the finest in its line. It is equipped throughout with automatic sprinkling system to guard against fire and provides the most approved storage facilities for customers' patterns.

Castings can be loaded directly onto cars inside our own buildings.



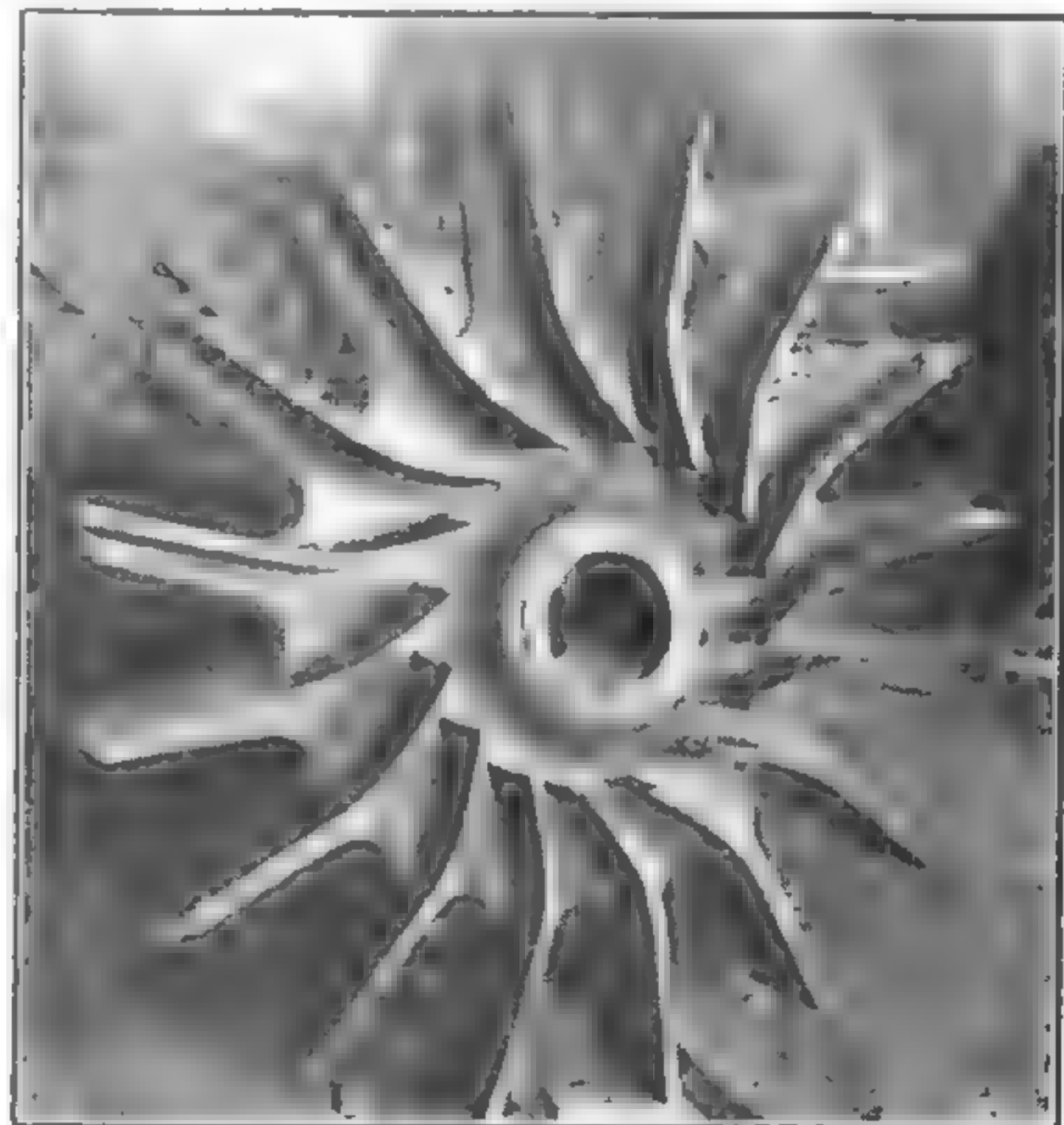


CASTINGS FOR TIRE MOLD

Castings for automobile tire molds must be very accurate. After machining and polishing, they must not have the slightest pinhole or imperfection.

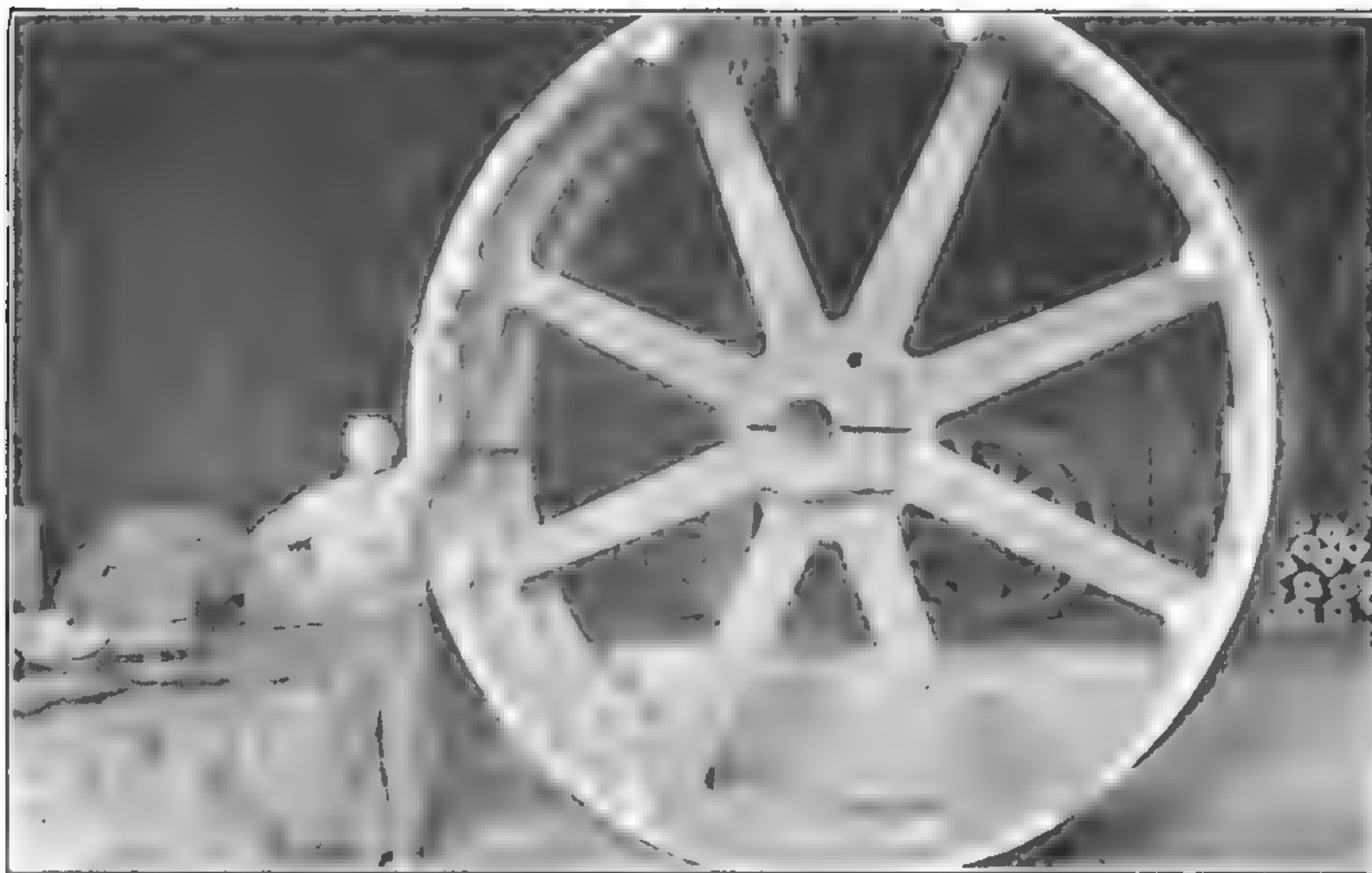
Our record with the customer for whom the castings shown above were made, is only one casting out of 549 requiring welding or plugging—a remarkable record.

Another example of careful workmanship is shown in the fan wheel pictured at right. All blades had to be a uniform number of degrees apart and perfectly straight and true. The outside diameter is  $55\frac{1}{2}$  inches and the weight 1395 pounds.

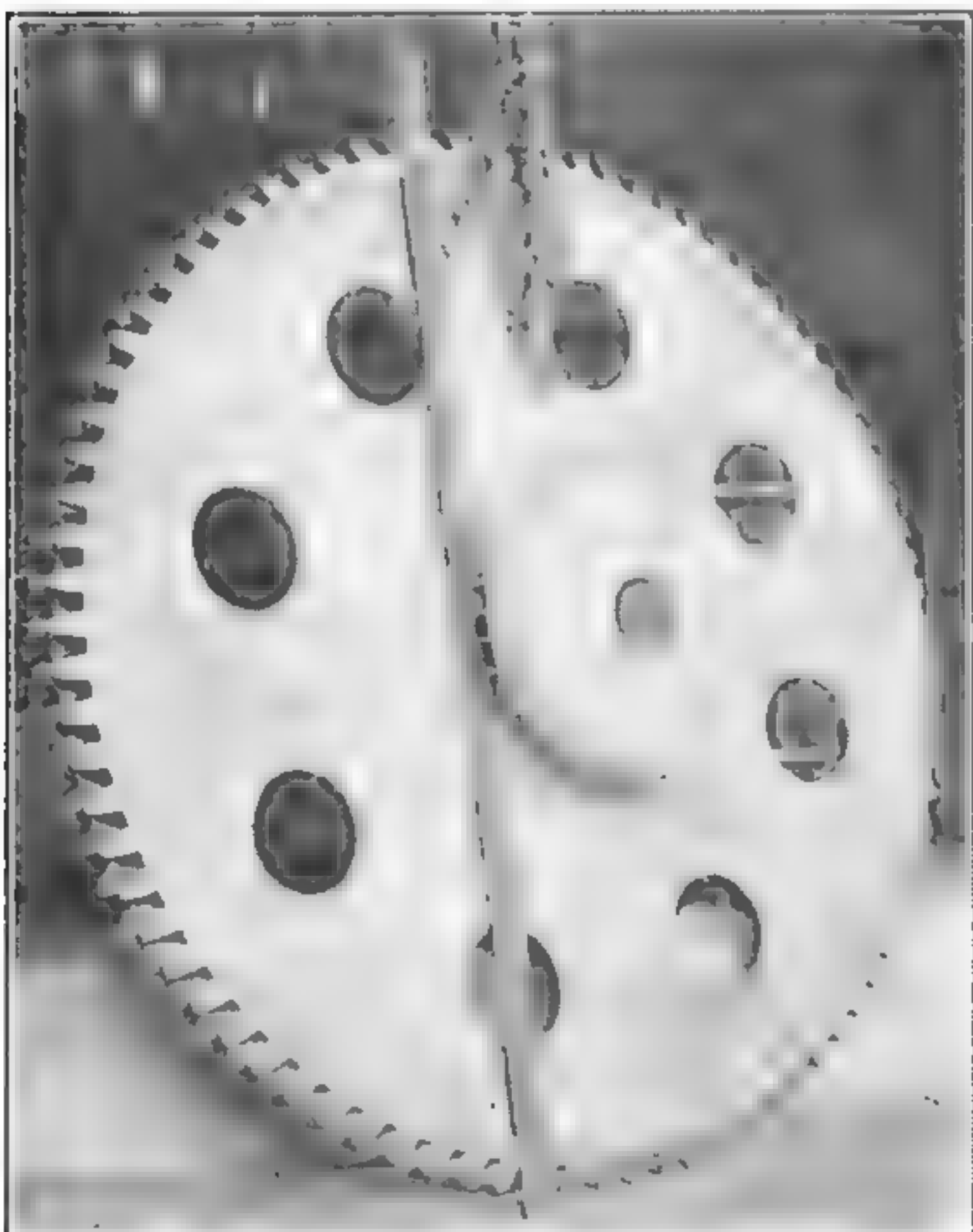


CASTING FOR FAN





CAST-STEEL PULLEY

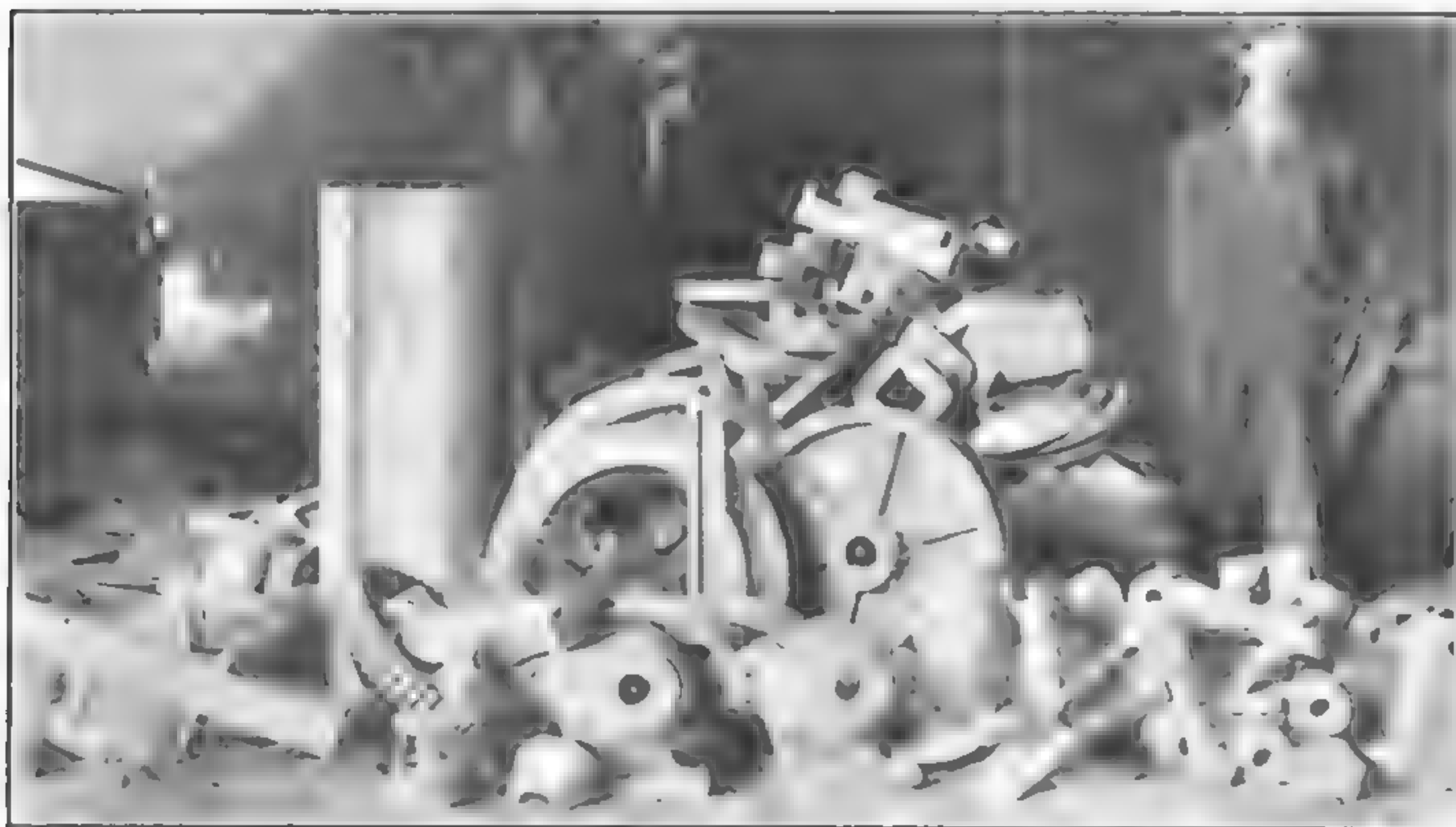
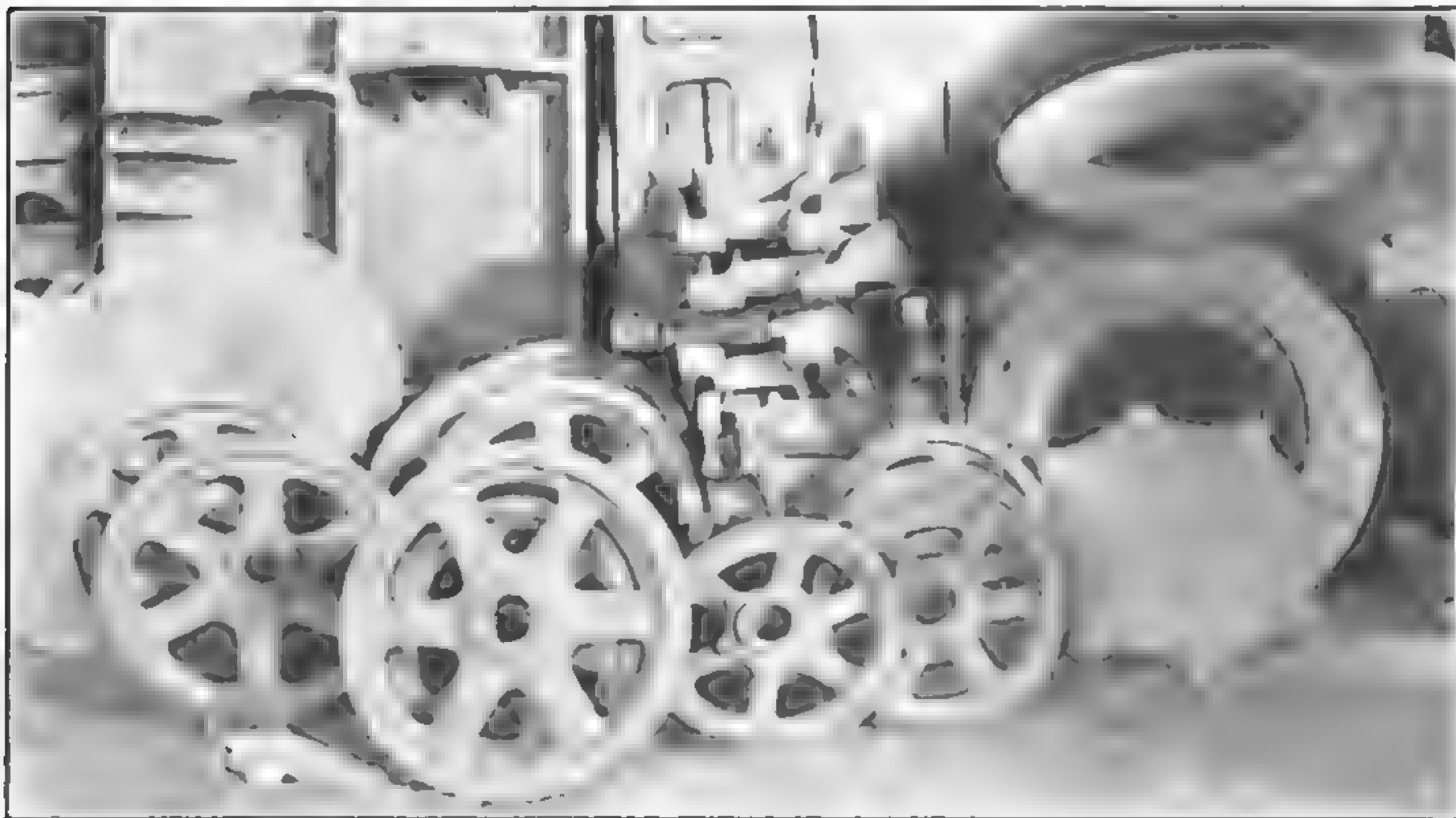


WORM GEAR

The cast-steel pulley shown above weighs 9653 pounds. The outside diameter is 116 inches and the face  $26\frac{3}{4}$  inches wide. Careful molding is essential for castings of this kind as they must run very true and uniform to insure correct balance.

The teeth in the worm gear wheel shown at the left are CAST TEETH—an excellent example of careful molding and supervision. This gear wheel is 9 feet 3 inches in diameter with an  $8\frac{1}{4}$ -inch face. The weight is 8730 pounds.





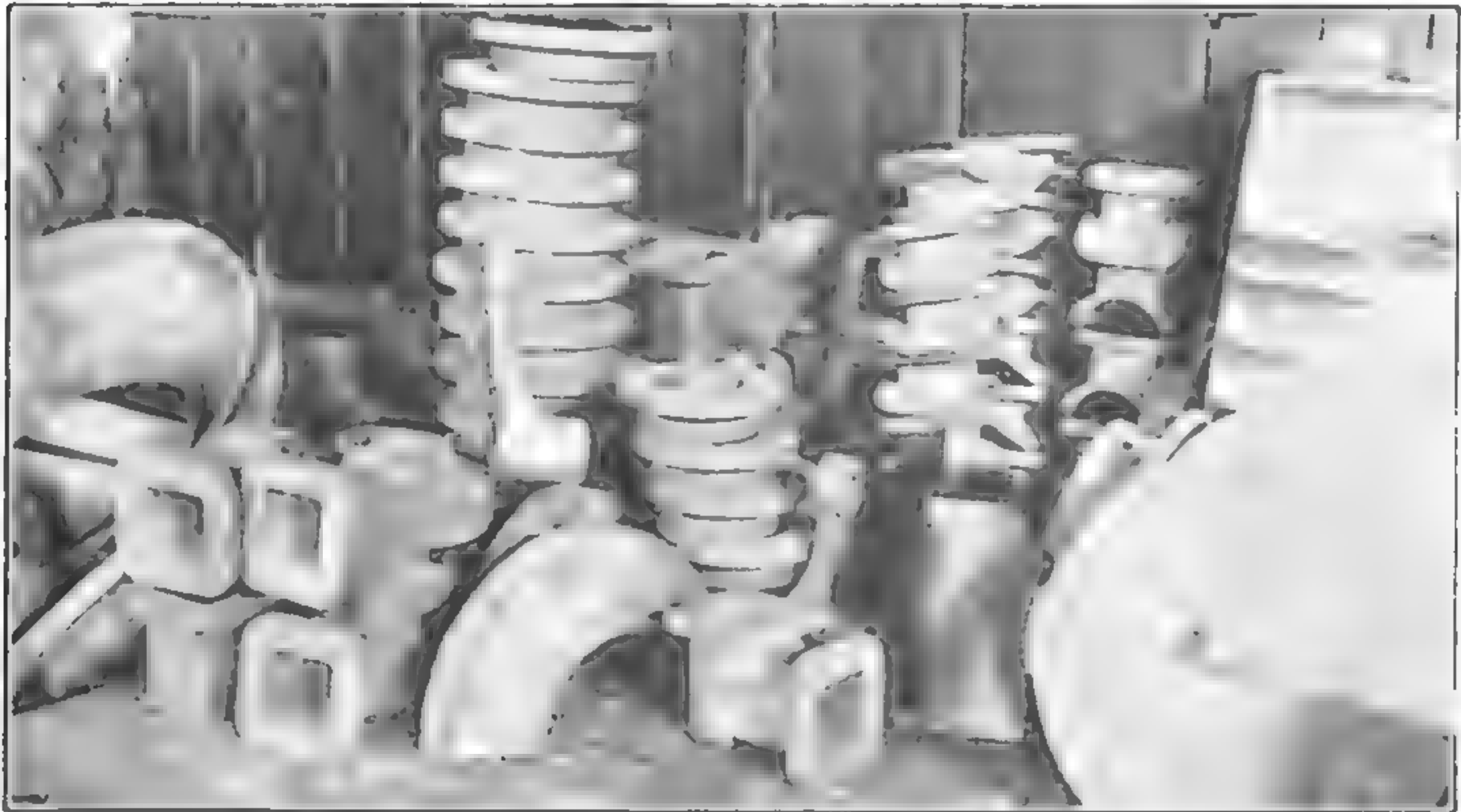
These two groups of steel castings show something of the variety we are constantly producing.

In the upper group are small gear blanks, bevel gear rings, a cover

plate and a dipper back for steam shovel.

In the lower group are crossheads, flanges, brake wheel, 2500-pound spindle for rolling mill, and a variety of small castings.





Two more groups photographed to show variety of castings.

Some of the castings are: 90° special elbows, various flanges, special tank nozzles, cover plate, cast-tooth bevel pinions, shrouded pinions and

gears, spindles or axles for paving machine, and various wheels and gears.

Perhaps the type of castings in which you are most interested is represented in these groups.





HYDRAULIC PRESS CYLINDERS

The hydraulic press cylinders shown above weigh 1800 pounds each. They represent but one type of cylinder we make, some of which are tested at over 5000 pounds hydrostatic pressure.

Here is an autoclave body and cover, machined and ready for test.

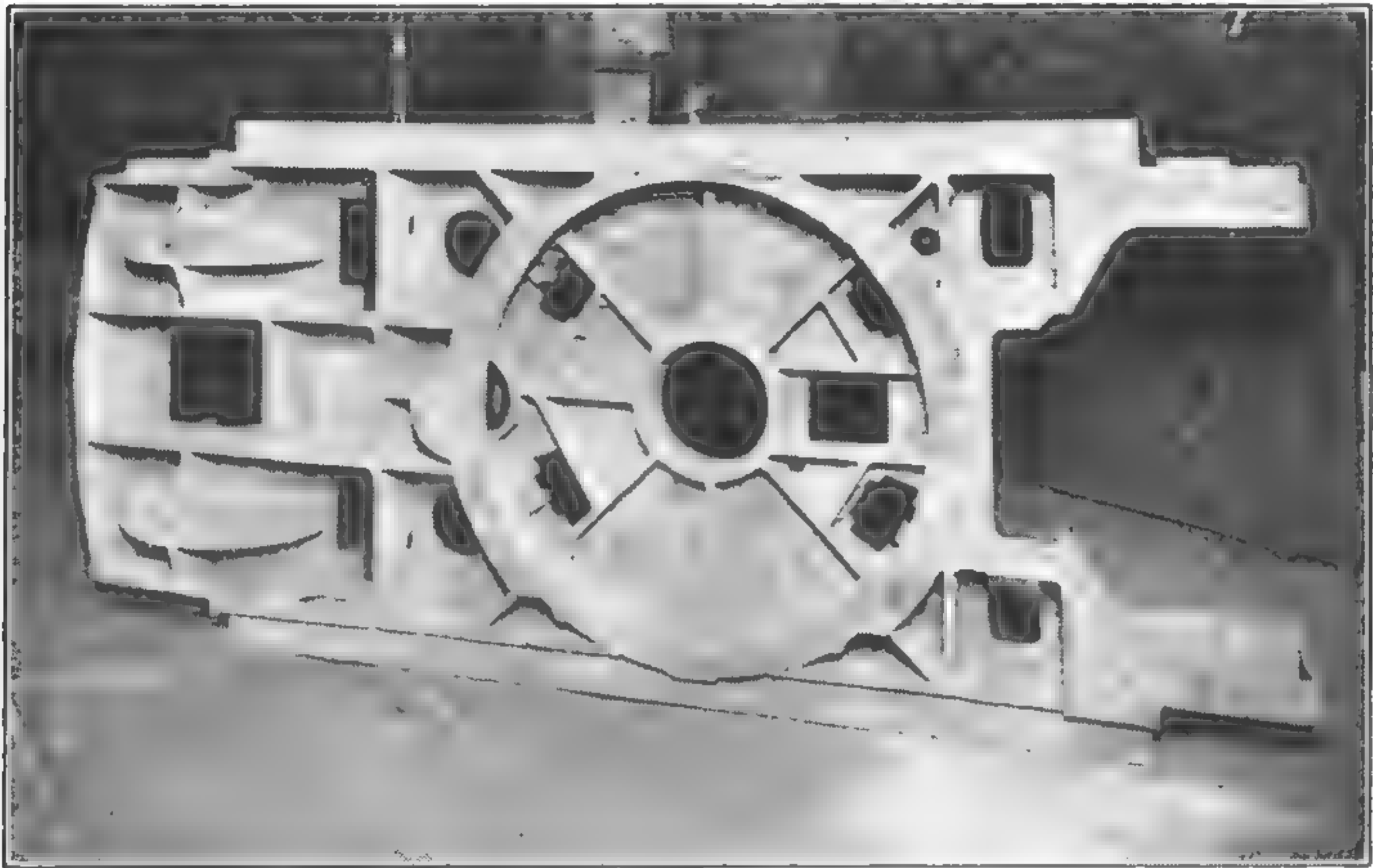
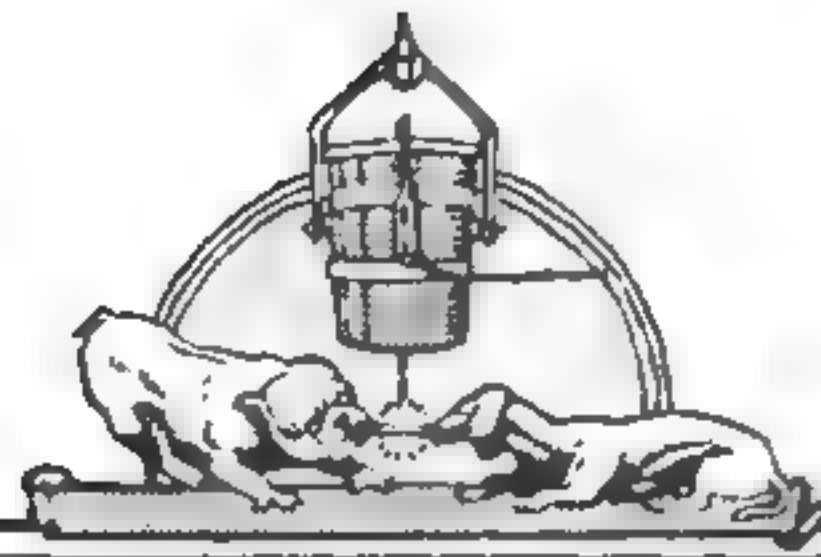
The body is 52½ inches high; 44 inches outside diameter at joint, and weighs 3980 pounds. The cover weighs 1562 pounds.

Our customer tried four other foundries without success before we made this casting which is one of several sizes of our make. It is for 1500 pounds ammonia pressure, but is tested at a much higher pressure.

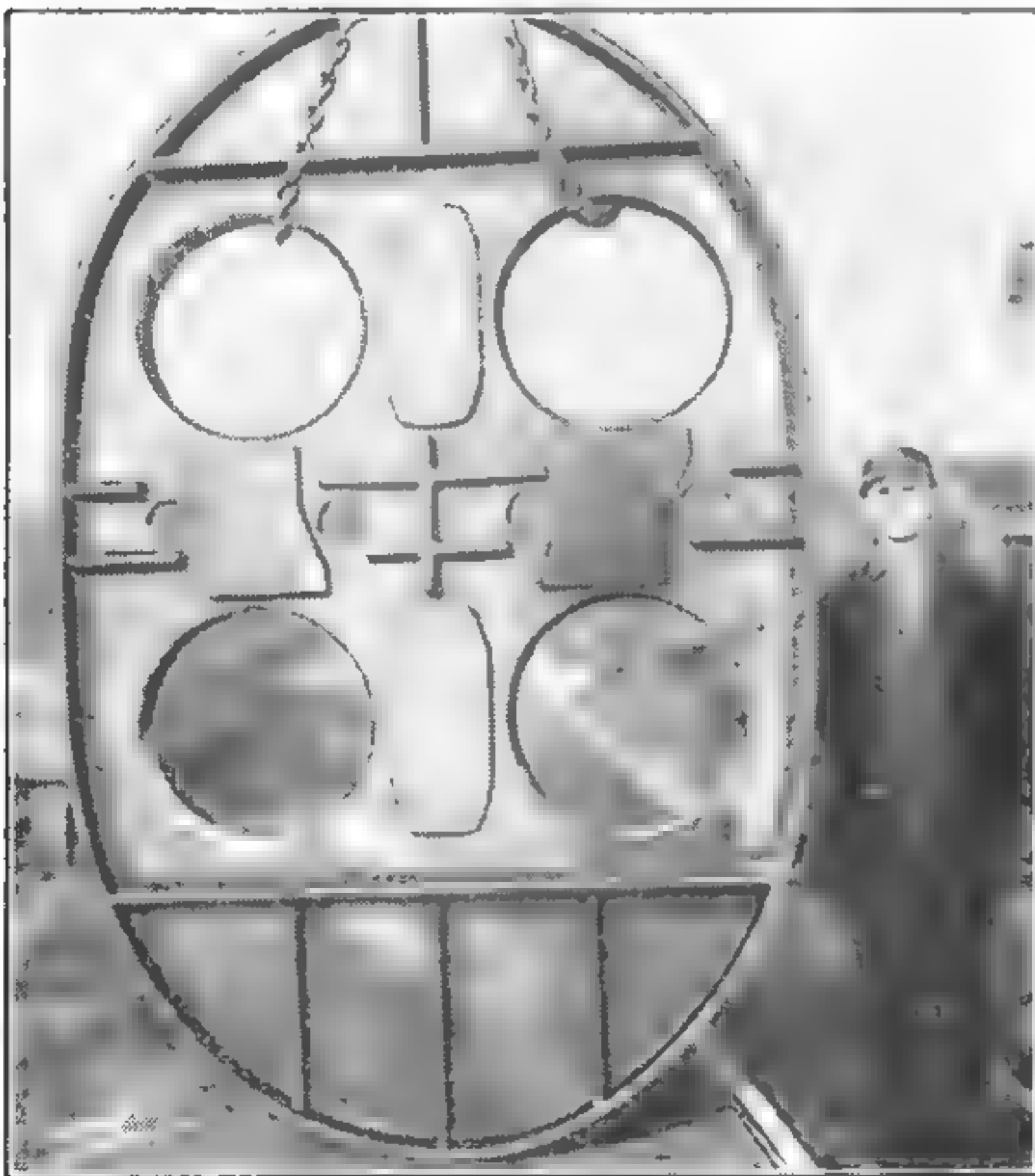


AUTOCLAVE BODY AND COVER





TURNTABLE BED FOR STEAM SHOVEL



SUBMARINE BULKHEAD

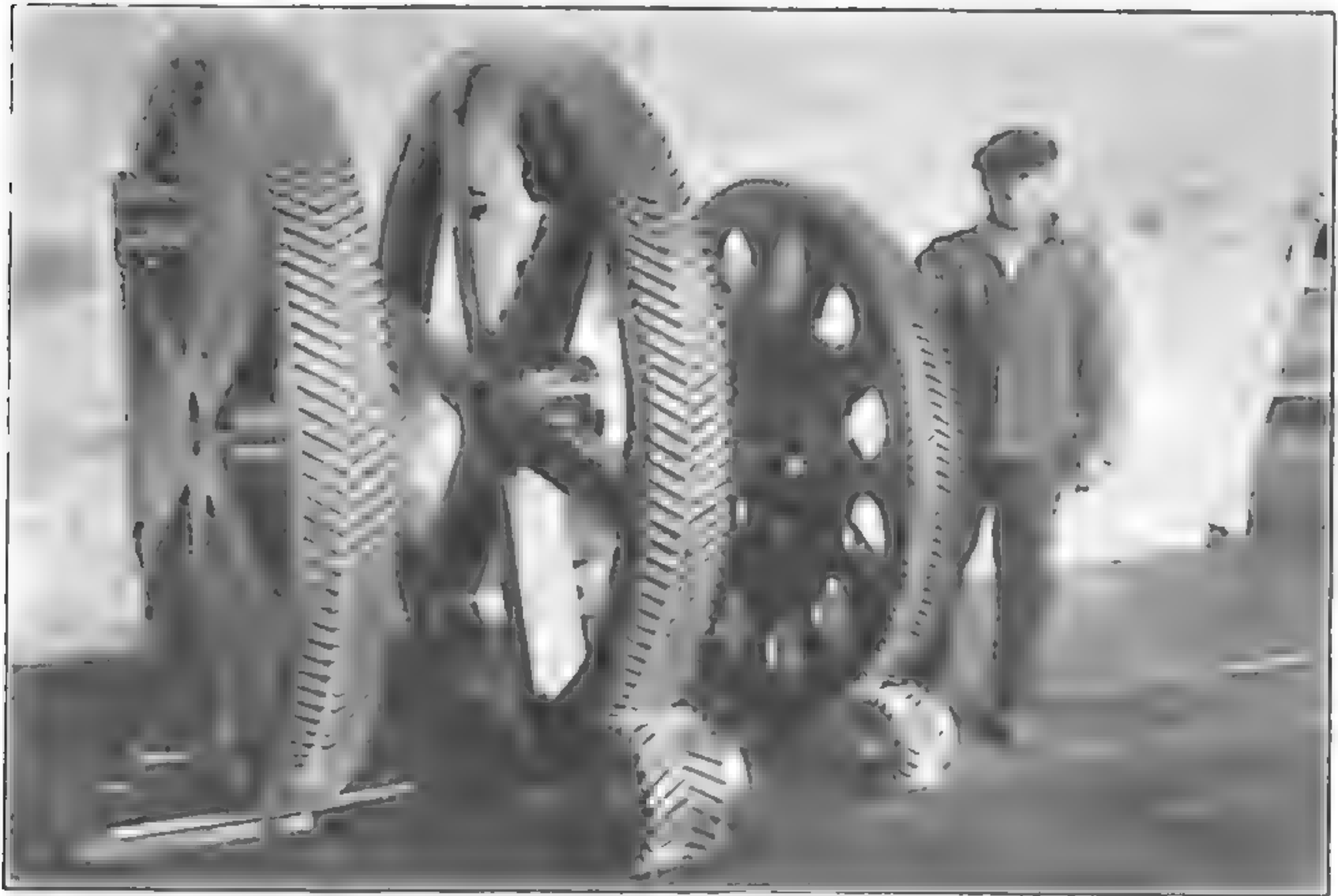
Over thirty different cores were used in casting the turntable bed shown above. Because of bearings and bosses, extreme accuracy was essential. The casting is 10 feet 10 inches long, 51 inches wide, about 12 inches deep, and weighs 5520 pounds.

Castings for submarine boats *must* be dependable; they must meet rigid requirements and withstand severe tests.

At the left is a casting for a submarine bulkhead with four openings for torpedo tubes. Height, 109½ inches; width, 72 inches; weight, 2455 pounds.

This is but one of the many submarine castings which we make.





**THREE MACHINED GEARS**

Above are three gears that have been machined and cut from gear blanks made in the Strong Steel Foundry.

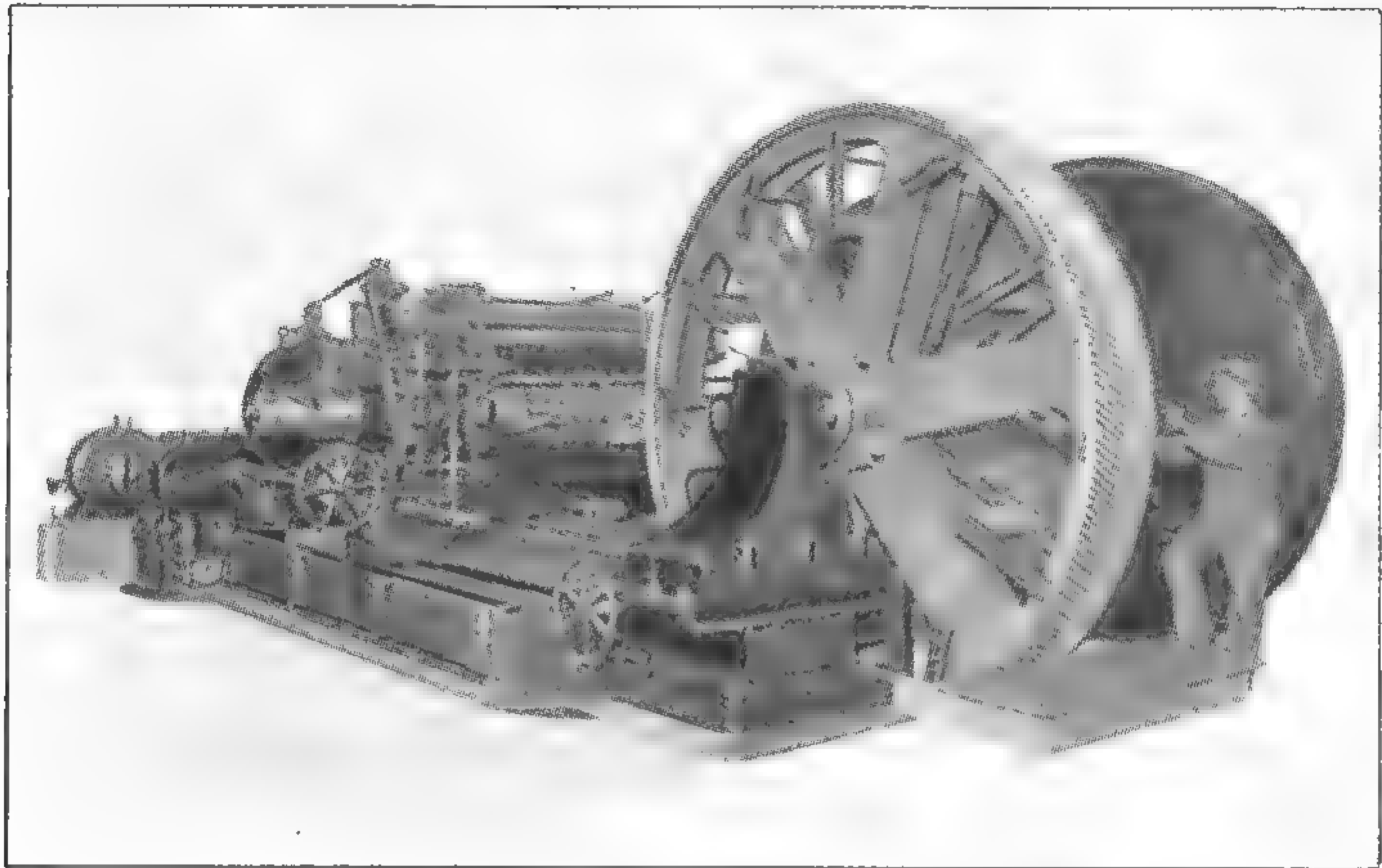
Customers are constantly commenting on the savings they have experienced in the machining and cutting of Strong Steel Castings as compared with castings purchased elsewhere—an important item to consider, especially where this saving hits the \$100 mark on a single casting as it sometimes does.

At the right is shown a casting of a blank gear in the rough. The outside diameter of this casting is 91 inches; face,  $14\frac{3}{8}$  inches; weight, 10,025 pounds.



**BLANK GEAR**





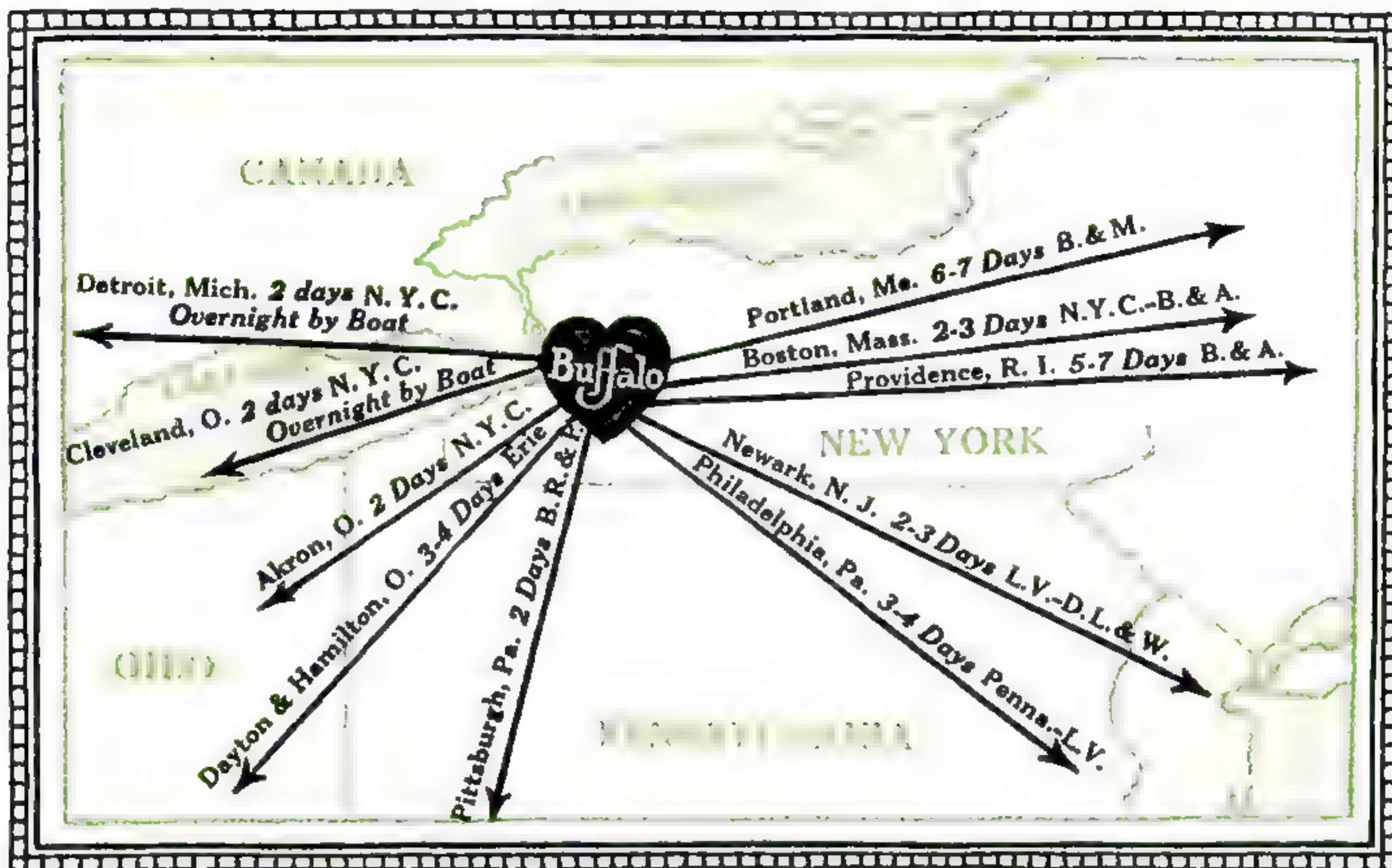
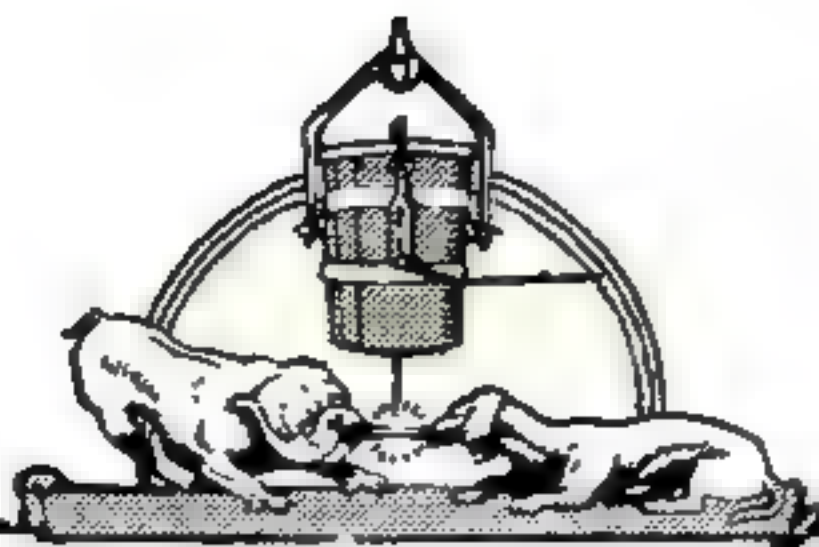
CUTTING A GEAR BLANK

Here is illustrated the cutting of a continuous-tooth gear from a Strong Steel Casting gear blank, 12 feet in diameter with an 18-inch face.

The cutting is done by the Farrel Foundry & Machine Company of Buffalo, makers of Sykes Herringbone Continuous-Tooth Gears gears which are famous for their accuracy, strength, and reliability.

The fact that Strong Steel Casting gear blanks are used for the making of these gears surely must recommend the use of Strong Steel Castings, or at least their trial, to other gear manufacturers whose pride, like ours, is the dependability of their product.





Our  
Convenient  
Location  
For Shipping

Buffalo is the heart of a large network of transportation lines.

There are twelve railroads, two trolley freight lines, and several lake freight lines converging in this important shipping center.

Through freight cars to important points are made up daily on many of these lines.

We are in a position to get castings to you very quickly after they are completed. In fact, because of the quick schedule with which work is dispatched through our foundry, customers frequently receive their Strong Steel Castings in less time than they have experienced with similar orders placed with foundries nearer to them.

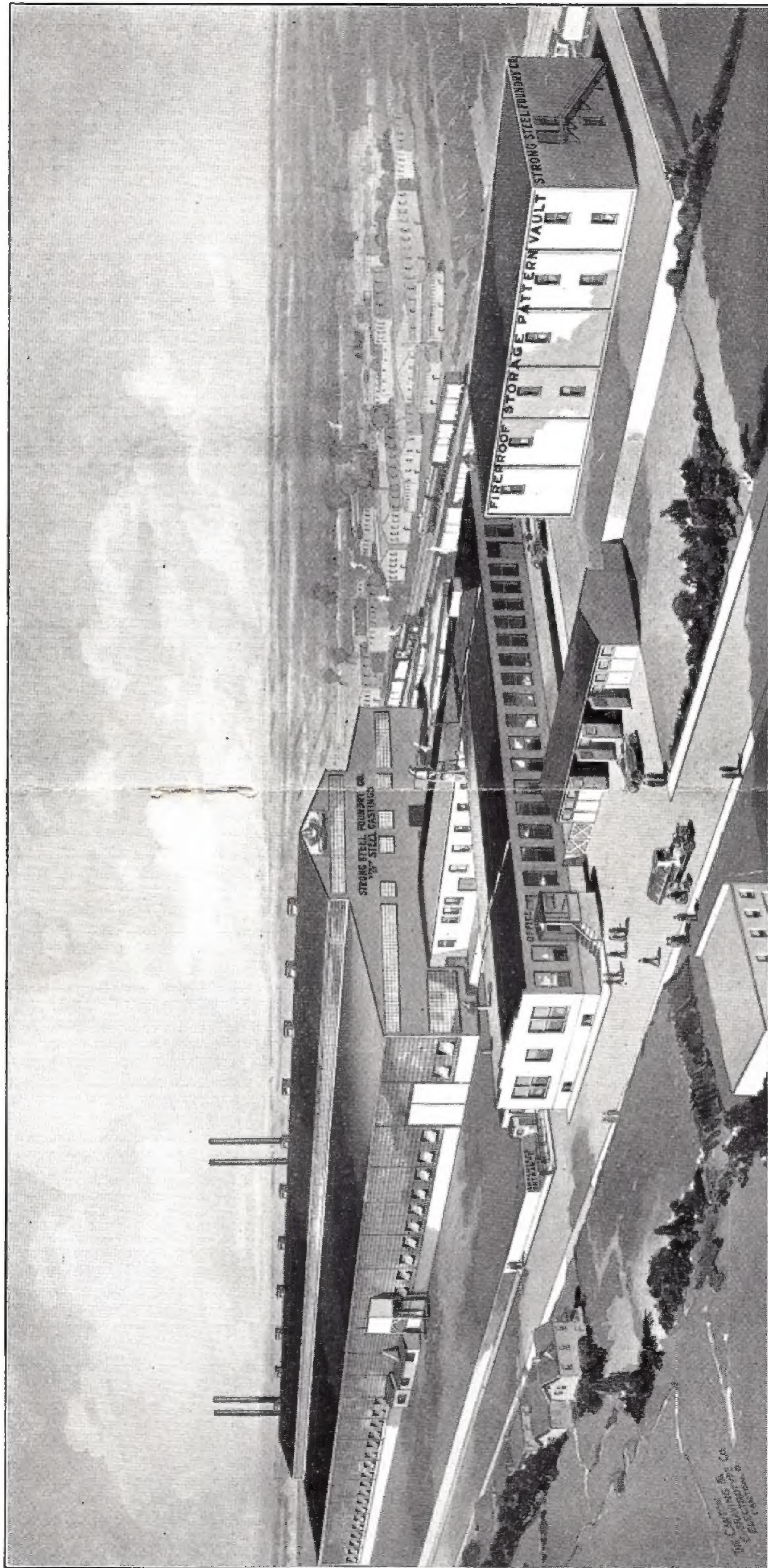
The arrows on the map shown above will give some idea of the freight time between Strong Steel Foundry and some important points.

We believe that our service  
is a real asset to the purchas-  
ing agent. May we have a  
chance to prove it?



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